AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1.   (Currently Amended) A method of measuring and analyzing packet-switched traffic in a Universal Mobile Telecommunications System, UMTS, network having a mobile ~~station (1)~~ station linked to a base ~~station (2)~~ station through a radio channel, the base station being linked to a radio access ~~network (3)~~ network, and the radio access network being linked to a support ~~node (7)~~ node in a packet core ~~network (9)~~ network, wherein cell-level location information of the mobile station is obtained in a node in the radio access network, said method ~~being characterized by the steps of~~ comprising:

~~adding (22)~~ adding the obtained cell-level location information to user-plane packet headers;

~~transmitting (23)~~ transmitting the user-plane packets carrying the cell-level location information towards the packet core network;

~~measuring (24)~~ measuring the cell-level location information, user data traffic, and packet data protocol, PDP, context information at the packet core network level; and

determining end-to-end quality-of-service, QoS, metrics for the mobile station by ~~analyzing (25)~~ analyzing the cell-level location information, user data traffic, and PDP context information measured at the packet core network level.

2.   (Original) The method of claim 1, wherein the step of measuring the cell-level location information includes measuring cell-level location information, user data traffic, and PDP context information in a plurality of radio access networks.

3.   (Original) The method of claim 2, wherein the step of measuring the cell-level location information and the PDP context information at the packet core network level includes measuring the cell-level location information and the PDP context information at an aggregation level at which user-plane traffic from the entire network is combined.

4.   (Original) The method of claim 1, wherein the step of adding the obtained cell-level location information to user-plane packet headers includes adding the cell-level location information only when the radio access network detects that the mobile station is performing a handover.

5.   (Original) The method of claim 4, wherein the handover is a hard handover, and the cell-level location information includes an identity of a new cell where the mobile station is located.

6.   (Original) The method of claim 4, wherein the handover is a soft handover, and the cell-level location information includes an identification of the cells in a new active set of cells.

7.   (Previously Presented) The method of claim 4, wherein the steps of adding the obtained cell-level location information to user-plane packet headers, and transmitting the user-plane packets carrying the cell-level location information towards the packet core network are performed only when cell-level location information is being measured.

8.   (Currently Amended) The method of claim 4, wherein the radio access network is a UMTS Terrestrial Radio Access Network, UTRAN, ~~(3) and~~ and the support node is a Serving GPRS Support Node, SGSN, ~~(7) and~~ and the step of measuring cell-level location information of the mobile station includes measuring the cell-level location information on an Iu interface ~~link (6)~~ link between the UTRAN and the SGSN.

9.   (Currently Amended) The method of claim 8, wherein the step of measuring the cell-level location information and the PDP context information at the packet core network level includes measuring the cell-level location information and the PDP context information for the entire network on a Gn ~~interface (8)~~ interface between the packet core ~~network (9)~~ network and a Gateway GPRS Support Node, ~~GGSN (10)~~ GGSN.

10.   (Previously Presented) The method of claim 9, wherein the step of adding the obtained cell-level location information to user-plane packet headers includes adding the obtained cell-level location information to a General Packet Radio Service Tunneling Protocol, GTP, extension header.

11.   (Previously Presented) The method of claim 10, wherein the step of adding the obtained cell-level location information to a GTP extension header includes encrypting the cell-level location information.

12.   (Previously Presented) The method of claim 1, wherein the UMTS network includes a plurality of mobile stations linked to a plurality of base stations through a plurality of radio channels, each of the base stations being linked to a UMTS Terrestrial Radio Access Network, UTRAN, and a plurality of UTRANs being linked via a plurality of Iu interface links to a Serving General Packet Radio Service Support Node, SGSN, in a packet core network, wherein the measuring step includes measuring the cell-level location information for the plurality of mobile stations and the PDP context information on the plurality of Iu interface links between the UTRANs and the SGSN.

13.   (Previously Presented) The method of claim 12, wherein the packet core network is linked to a Gateway GPRS Support Node, GGSN, through a Gn interface link, and the method includes the steps of:

passing the cell-level location information for the mobile stations and PDP context information from the plurality of UTRANs to the GGSN via the Iu interface links, the SGSN, the packet core network, and the Gn interface link;

measuring on the Gn interface link, user-plane traffic for the entire network, said user-plane traffic including the cell-level location information for the mobile stations and the PDP context information combined from the plurality of UTRANs; and

determining the end-to-end QoS metrics for the mobile station by analyzing the cell-level location information and PDP context information for the entire network.

14.   (Currently Amended) A Universal Mobile Telecommunication System, UMTS, network for exchanging data packets, said telecommunication network including an access network ~~portion (3)~~ portion for connecting a plurality of mobile ~~stations (1)~~ stations to the telecommunication network, a packet core network ~~portion (9)~~ portion for connecting the access network portion to external networks ~~(12, 13)~~, and at least one network monitoring ~~device (16)~~ device, wherein the access network portion includes nodes for transmitting data packets from the mobile stations towards the packet core network portion, said ~~telecommunication network characterized by~~ UMTS network comprising:

means within at least one of said nodes in the access network portion ~~including means~~ for adding cell-level location information to the data packets that are transmitted towards the packet core network portion; and

~~the monitoring device being placed at a point (15b)~~ an aggregate measurement point in the telecommunication network where the monitoring device measures cell-level location information aggregated from a plurality of nodes, ~~and~~

wherein the monitoring device determines end-to-end quality-of-service, QoS, metrics for the mobile station by analyzing the cell-level location information and PDP context information for the plurality of nodes.

15.   (Currently Amended) A monitoring ~~device (16)~~ device for measuring and analyzing packet-switched traffic in a Universal Mobile Telecommunication System, UMTS, radio telecommunication network having a plurality of mobile ~~stations (1)~~ stations linked to a plurality of base ~~stations (2)~~ stations through a plurality of radio channels, each the base station being linked to a radio access ~~network (3)~~ network, and

a plurality of radio access networks being linked to a support ~~node (7)~~ node in a packet core ~~network (9)~~ network, said monitoring device characterized by:

at least one measurement point ~~(45b, 47)~~ for measuring cell-level location information of the mobile stations at a level in the network where the cell-level location information of a plurality of mobile stations is aggregated; and

computing means for determining end-to-end quality-of-service, QoS, metrics for the mobile station by analyzing the measured aggregated cell-level location information.

16. (Previously Presented) The monitoring device of claim 15, further comprising means for obtaining packet data protocol, PDP, context information for the packet switched traffic, wherein the computing means includes means for analyzing the PDP context information together with the measured cell-level location information for the entire network.

17. (Canceled)

18. (Canceled)